

**ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM**

Plant Abstract

Element Code: PDONA030J0

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Camissonia exilis* (P.H. Raven) P.H. Raven

COMMON NAME: Slender evening primrose, Cottonwood Springs suncup, slender camissonia

SYNONYMS: *Oenothera exilis* P.H. Raven

FAMILY: Onagraceae

AUTHOR, PLACE OF PUBLICATION: *Camissonia exilis* (P.H. Raven) P.H. Raven, Brittonia 16(3): 283. 1964. *Oenothera exilis* P.H. Raven, University of California Publications in Botany 34: 114. 1962.

TYPE LOCALITY: Virgin Mountains, near Cottonwood Springs, Mohave County, Arizona.

TYPE SPECIMEN: POM 264,197. P.A. Munz (16779) 12 June 1890.

TAXONOMIC UNIQUENESS: Distinct species in genus of about 58-60 species; mostly of sub-arid, far-western U.S. and adjacent Canada and Mexico.

DESCRIPTION: Small slender annual with stems simple or more commonly branched from the base; stems are purplish-brown and covered with minute glandular hairs. Leaves are simple, about 3.5 cm (1.4 in) long, 0.7 cm (0.28 in.) wide, upper leaves smaller; leaf margins slightly toothed. **Prominent veins on the underside of the leaf** lined with brownish oil cells. Flowers yellow fading to purplish, tiny (1-1.5 mm), erect and sparse, with 4 stamens subtended by bract; petals 4. Fruit is club-shaped capsule, 4.5-7.0 mm long.

AIDS TO IDENTIFICATION: *C. exilis* is a very small plant with small yellow flowers (1-1.5 mm long), petals 4, without the whorl of epipetalous stamens present in other species; stamens are attached to sepals rather than on petals. This species has four stamens whereas all other *Camissonia* have eight.

ILLUSTRATIONS: Line drawing (USDI, FWS)

Line drawing (AGFD 2001)

Color photo (Phillips 2001)

Color photo (Phillips in

http://www.unps.org/fg/jpg/Camissonia_exilis_p2.jpg)

Line Drawing (In http://www.unps.org/fg/jpg/Camissonia_exilis_p1.png)

Color photo (B. Phillips, *in* Utah Native Plant Society 2003-2005, <http://www.utahrareplants.org>)

Color photos of plant and habitat (M. Kirkpatrick, *in* Utah Native Plant Society 2003-2005, <http://www.utahrareplants.org>)

Color photo of specimen (ASU-98177, *in* SEINet at <http://seinet.asu.edu/collections/TaxaDetails.jsp>)

TOTAL RANGE: From northern Arizona in Mohave and Coconino counties, and southern Utah in Garfield (south of Canonville) and Kane (just north of AZ-UT border) counties.

RANGE WITHIN ARIZONA: Three or four sites in Hungry Valley, on road to North Water Springs at southeast base of Virgin Mountains, Mohave County. Two sites in Coyote Valley, approximately 100 feet south and 100 feet north (Utah) of the Arizona-Utah state line.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Herbaceous annual.

PHENOLOGY: Flowers May – June; late April – May in Utah (UNPS 2003-2005).

BIOLOGY: Species appears to be dependent upon winter precipitation for seedling establishment and germination; no germination is likely to occur in drought years. Flowers usually number 1 to 4 per plant with extremes of 0 to 13. Flowers remain open all day. Fruits usually 2 to 34 per plant with extremes of 0 to 139.

HABITAT: Warm desert shrub communities restricted to calcium-rich deposits on small islands of sandy-textured saline soil, apparently in association with subsurface seepage.

ELEVATION: 3,500 - 5,000 feet (1067-1525 meters). Utah Native Plant Society (2003-2005) reports elevation from 5,000 – 6,900 feet (1525-2105 m).

EXPOSURE: Open.

SUBSTRATE: Saline soil derived from gypsum-clay outcrops in the Chinle Formation (Coyote Valley) and on travertine-encrusted flats (Hungry Valley).

PLANT COMMUNITY: Great Basin Grassland (Coyote Valley) and Mohave Desertscrub (Hungry Valley). Associated species include: *Acacia*, *Artemisia tridentata* (big sagebrush), *Chrysothamnus* (rabbitbrush), *Dalea* (prairie-clover), *Ephedra* (Mormon-tea), *Eriogonum* (buckwheat), *Gutierrezia* (snakeweed), *Juniperus* (juniper), and *Rhus* (sumac). At the base of the Virgin Mountains, found with *Acacia greggii* (catclaw acacia), *Chrysothamnus*, *Ephedra*, *Eriogonum*, *Stanleya* (prince-plume), and *Yucca baccata* (fleshy-fruit yucca). (SEINet accessed 2005). In Utah, found in sagebrush, galleta, and pinyon-juniper communities (UNPS 2003-2005).

POPULATION TRENDS: Precarious, because of extremely limited range and habitat. BLM monitoring in plots in Hungry Valley since 1986, found the population to emerge in May 1990, 1991 and 1992. The population in Coyote Valley has not been known to emerge since 1982.

Phillips (1982) reports a total of 67 plants observed in Coyote Valley in two localities. Total potential habitat in Coyote Valley is approximately 200 square meters. Total plants observed in Hungry Valley were 51, found in two localities. In May 1982, these population exhibited 100% reproduction.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS:

None (USDI, FWS 1996)
[Category 2 USDI, FWS 1993]
[Category 2 USDI, FWS 1990]
[Category 2 USDI, FWS 1985]
[Category 1 USDI, FWS 1983]
[Category 2 USDI, FWS 1980]
[PTN-T USDI, FWS 1975]

OTHER STATUS:

Salvage Restricted (ARS, ANPL 1999)
[Salvage Restricted (ARS, ANPL 1993)]
Forest Service Sensitive (USDA, FS Region 3 1990)
None (USDI, BLM AZ 2005)
[Bureau of Land Management Sensitive USDI, BLM AZ 2000]

MANAGEMENT FACTORS: This species is an extreme habitat specialist. Plants do not seem to be palatable to livestock, wildlife or insects to any great degree. However, trampling by cattle and off-road vehicles is common. The Coyote Valley population occurs along a graded roadway and grows in a vehicle pullout area. NatureServe (2005) reports that at some sites, there has been a little ORV use and woodcutting, but neither poses much threat.

CONSERVATION MEASURES TAKEN: The Hungry Valley population has been monitored by BLM from 1986 through 1992.

SUGGESTED PROJECTS: Close monitoring to determine population status. This will be difficult because the plants are not present every year if insufficient precipitation to germinate. Protection of habitat through fencing, especially in high vehicular use areas. Additional surveys in wet years. Re-visit the Coyote Valley site.

LAND MANAGEMENT/OWNERSHIP: Arizona State Land Department (Coyote Valley); BLM - Arizona Strip Field Office (Hungry Valley). In Utah: BLM – Kanab Field Office; NPS – Grand Staircase National Monument; Private.

SOURCES OF FURTHER INFORMATION

REFERENCES:

- Arizona Department of Agriculture. 1993. Appendix A. Protected group of plants - covered list of protected native plants by categories. p. 10.
- Arizona Department of Agriculture. 1999. Arizona Native Plant Law, Appendix A.
- Falk, M. & P. Jenkins et al., 2001. Arizona Rare Plant Field Guide. Published by a collaboration of agencies and organizations. Unnumbered pages.
- <http://www.nazflora.org/Onagraceae.htm>.
- http://www.unps.org/fg/jpg/Camissonia_exilis_p1.png.
- Hughes, L. 1991. Monitoring report *Camissonia exilis*. Annual update 1991. Bureau of Land Management, Arizona Strip District, St. George, Utah.
- Integrated Taxonomic Information System (ITIS). Retrieved 9/21/2005 from ITIS, <http://www.itis.usda.gov>.
- Missouri Botanical Garden – TROPICOS, Nomenclatural Data Base. *Camissonia exilis* (P.H. Raven) P.H. Raven. http://mobot.mobot.org/cgi-bin/search_vast. Accessed: 21 Sep 2005.
- NatureServe Explorer: An online encyclopedia of life [web application]. 2002. Version 1.6. Arlington, Virginia, USA: NatureServe. Available: <http://www.natureserve.org/explorer>. (Accessed: August 12, 2003).
- NatureServe. 2005. NatureServe Explorer: An online encyclopedia of life [web application]. Version 4.5. NatureServe, Arlington, Virginia. Available: <http://www.natureserve.org/explorer>. (Accessed: September 21, 2005).
- Phillips, A.M. III, B.G. Phillips and N. Brian. 1982. Status report: *Camissonia exilis* (Raven) Raven. Submitted to U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 11 pp.
- Phillips B. Available: http://www.unps.org/fg/jpg/Camissonia_exilis_p2.jpg.
- Raven, P.H. 1962. The systematics of *Oenothera* subgenus *Chylismia*. University of California Publications in Botany. University of California Press. Berkeley and Los Angeles, California. 8, 34-35, 68, 74-75, 114-115 pp.
- Raven, P.H. 1964. The generic subdivision of Onagraceae, Tribe Onagreae. *Brittonia* 16:276, 283.
- Raven, P.H. 1969. A revision of the genus *Camissonia* (Ongraceae). *Contrib. U.S. Natl. Herbarium* 37(5): 229.
- SEINet. Collections Search Result. Accessed 9/21/2005 <http://seinet.asu.edu/collections/list.jsp>.
- USDA, Forest Service Region 3. 1990. Regional Forester's Sensitive Species List.
- USDA, NRCS. 2002. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.
- USDA, NRCS. 2004. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

- USDI, Bureau of Land Management. 2000. Arizona BLM Sensitive Species List. Instruction Memorandum No. AZ-2000-018.
- USDI, Bureau of Land Management. 2005. Arizona BLM Sensitive Species List.
- USDI, Fish and Wildlife Service. 1975. Threatened or Endangered Fauna or Flora. Federal Register 40(127): 27830.
- USDI, Fish and Wildlife Service. 1980. Endangered and Threatened Wildlife and Plants; Review of Plant Taxa for Listing as Endangered or Threatened Species. Federal Register 45(242): 82494.
- USDI, Fish and Wildlife Service. 1983. Endangered and Threatened Wildlife and Plants; Supplement to Review of Plant Taxa for Listing; Proposed Rule. Federal Register 48(229): 53646.
- USDI, Fish and Wildlife Service. 1985. Endangered and Threatened Wildlife and Plants; Review of Plant Taxa for Listing as Endangered or Threatened Species. Notice of Review. Federal Register 50(188):00009.
- USDI, Fish and Wildlife Service. 1990. Endangered and Threatened Wildlife and Plants; Review of Plant Taxa for Listing as Endangered or Threatened Species; Notice of Review. Federal Register 55(35): 6193.
- USDI, Fish and Wildlife Service. 1993. Plant Taxa for Listing as Endangered or Threatened Species; Notice of Review. Federal Register 58(188): 51155.
- Utah Native Plant Society. 2003-2005. Utah Rare Plant Guide. Salt Lake City, UT: Utah Rare Plant Guide Home Page. <http://www.utahrareplants.org>. Accessed 9/21/2005.
- Welsh, S.L. et al. 1993. A Utah Flora. Second edition. Brigham Young University Press. Provo, Utah. Pp: 494-495.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

- G. Brown - Arizona State University, Tempe.
- Lee Hughes - Arizona Strip District, Bureau of Land Management, St. George, Utah.
- Bruce Parfitt - Missouri Botanical Garden, St. Louis.
- Art Phillips - Private Consultant, Flagstaff, Arizona.
- Barbara Phillips - Zone Botanist, Coconino, Kaibab, and Prescott national forests, Flagstaff, Arizona.
- Peter Raven - Missouri Botanical Garden, St. Louis.

ADDITIONAL INFORMATION:

- Phillips, et al (1982) recommended for federal Threatened status under the Endangered Species Act.

Revised: 1991-12-05 (JSP)
1992-05-21 (DBI)
1992-05-28 (BGP)

1992-09-14 (BKP)

2003-08-29 (AMS)

2005-09-22 (SMS)

To the user of this abstract: you may use the entire abstract or any part of it. We do request, however, that if you make use of this abstract in plans, reports, publications, etc. that you credit the Arizona Game and Fish Department. Please use the following citation:

Arizona Game and Fish Department. 20XX (= **year of last revision as indicated at end of abstract**). X...X (= **taxon of animal or plant**). Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. X pp.